

Melexis

INSPIRED ENGINEERING

MLX90411-L

SINGLE-COIL
FAN DRIVER



The hummingbird's beating wings flap at extremely high frequencies, typically around 50 times per second. This allows it to fly at speeds exceeding 15 m/s, to fly backwards or to seemingly be suspended in the air in perfect balance. What better animal to reflect the motor/control driver and actuator capabilities?

LOW NOISE FAN DRIVER FOR AUTOMOTIVE APPLICATIONS

MLX90411-L

The **L-grade version** of the MLX90411 operates over a supply voltage range from 3.2 V to 32 V, and is robust up to 40 V. With an operating temperature up to 150°C, it is a perfect fit for any automotive fan, blower or pump application on a 5 V regulated supply, or directly on the 12 V boardnet, or even the 24 V boardnet for trucks. With current limit options **from 330 mA up to 800 mA**, the MLX90411 can drive automotive applications **from 0.1 W up to 7 W** in a safe and cost effective way, without risk for overheating the device or the motor coil. The closed-loop speed control limits the speed variation to less than +/-5% regardless of the load condition, battery voltage variation, or fan production tolerances over the full temperature range. Together with the adaptive low noise commutation it enables industry standard efficiency and acoustic performance. Multiple commutation options are available, including a sinewave option offering unprecedented low levels of vibration.



KEY FEATURES

- ✓ All-in-one fan driver, including high-sensitivity Hall-effect sensor
- ✓ Up to 800 mA motor current
- ✓ Adaptive commutation for best in class efficiency over the full speed range for any fan design
- ✓ Commutation options
 - Maximum torque
 - Very low acoustic noise
- ✓ PWM control input
 - Open loop
 - Closed loop speed control (+/-5%)
- ✓ Operating supply range from 3.2 V to 32 V
- ✓ Operating junction temperature from -40 to 150°C
- ✓ Protections and diagnostics
 - Locked Rotor Protection (LRP) (Programmable)
 - Temperature Shutdown (TSD)
 - Over Voltage protection (OVP) (Programmable)
 - Short circuit protection (OCP)
 - Current limit (CL)
 - FG/RD open drain diagnostics output (Programmable)
- ✓ Certifications MLX90411-L
 - AEC-Q100-Rev-H qualified packages
 - Automotive PPAP (PSW)
- ✓ I2C programming
 - Fast prototyping
 - End-of-line programming
- ✓ Package
 - Straight-lead SOT package (ZE)
 - Tiny UTDFN 2.5 x 2.0 x 0.4 mm (LD)

MORE AT: WWW.MELEXIS.COM/MLX90411-AUTOMOTIVE

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APPLICATION VISUALS



Seat fans



LED headlight cooling



ADAS GPU fan

- PM 2.5
- Air purifier
- Thermistor

Display GPU
Multimedia GPU

Wireless charger

Fan drivers



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